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REMARKS ON THE PALEOECOLOGY AND REEF BUILDING POTENTIAL OF LATE JURASSIC SILICEOUS SPONGES. *Memoirs of the Queensland Museum* 44: 297 1999:- In the early Late Jurassic (Oxfordian) siliceous sponges developed extensively. They formed a discontinuous siliceous sponge reef belt extending over more than 7000km from New Foundland, Iberia, France, Switzerland, Germany, Poland, Romania to the Caucasian Mountains.

Siliceous sponges are no systematic unit but belong to the different taxonomic groups Hexactinellida and the polyphyletic lithistid demosponges. Due to their different organisation and biology, the ecological demands of the different siliceous sponges groups differ remarkably. The two major groups must be carefully distinguished for paleoenvironmental interpretations.

In general, lithistid demosponges are active filter feeding organisms. They feed on nanoplankton mainly bacteria. The bathymetric distribution of demosponges corresponds to a great extent with the bathymetric distribution of bacteria. The fairly high preservation potential of rigid demosponges is explained by a high amount of mesohyl-dwelling bacteria, causing rapid calcification after death.

Osmotrophy is an important feeding strategy of Hexactinellida. Dissolved organic matter is enriched in deeper water low-energy settings, causing the majority of

Hexactinellida to dwell in such habitats. As the mesohyl of Hexactinellida consists of very thin collagenous material, there is hardly any room to harbour bacteria. This easily explains why microbially induced post-mortem calcification of the sponge by microbial automicrites occurs at a much lower rate so that fossilisation potential is much lower in comparison with rigid demosponges.

The taxonomic composition of fossil siliceous sponge populations is mainly controlled by sedimentation rate, nutrition and hydrodynamics. The dominance of major taxa is strongly influenced by bathymetry, due to changes of hydrodynamics and nutrition along a bathymetrical gradient. However, the quality of substrates, water energy or extreme oligotrophy may strongly modulate bathymetric distribution.

□ *Porifera, Late Jurassic, Hexactinellida, lithistid Demospongiae paleoecology calcification, fossilisation.*

Manfred Krautler (email: manfred.krautler@geologie.uni-stuttgart.de), Institut für Geologie und Paläontologie der Universität, Herzweg 51, D-70174 Stuttgart, Germany; 1 June 1998.